project WEB

Fall 2006

*Connecting Projects WILD, WET and Learning Tree in New Hampshire*

# Sustaining Life on Earth

As the human population of the earth continues to grow, it is becoming increasingly critical to recognize that some of its natural resources are limited. As we continue to deplete those resources, especially to fulfill our ever-growing need for energy – to heat our homes, fuel our cars and power industry – we are heading toward the end of the earth's supply. As we approach that end, we are facing some hard decisions, such as whether or not to drill for oil in the environmentally sensitive Arctic. In addition, the enormous use of some of those resources, such as the burning of oil, and especially coal, in industry is causing acid rain and contributing to global climate change.

What are our options? In this issue, we will look at some *renewable* natural resources that, if used in a responsible manner, can continue to be available for us to use and enjoy indefinitely. The focus of the next issue will be *nonrenewable* natural resources. What are the pros and cons of each? Let's take a look at some of the earth's natural resources upon which we depend to maintain our current way of life. We each need to recognize that we have choices to make about our use of those resources. Are we making the right choices for us, the environment and future generations?

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## IN THIS ISSUE



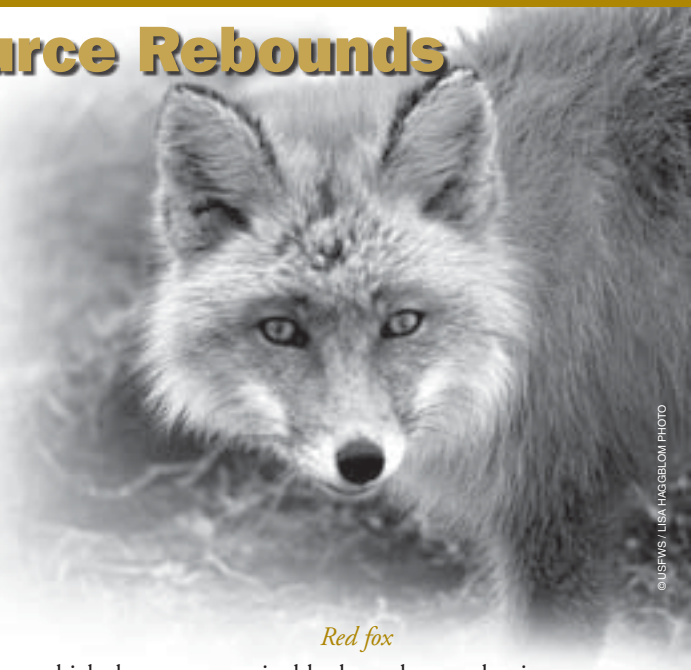
*"Never doubt that a small group of thoughtful, committed citizens can change the world. Indeed, it is the only thing that ever has."*
*~Margaret Mead*



# Wildlife – A Resource Rebounds

When considering renewable resources, many people overlook wildlife. Furbearers are a common and abundant renewable resource traditionally used by humans throughout time. Wildlife biologists define "furbearers" as mammals that have been traditionally trapped or hunted for their fur. Furbearers include beaver, muskrat, red and gray fox, raccoon, coyote and several members of the weasel family, including fisher, marten, ermine, mink and otter. Fur is valued for its natural beauty, durability and insulating qualities.

Furbearers have been an important resource throughout the development of our country. When early colonists first arrived in North America, they found an abundance of furbearers and other wildlife, such as deer, moose and turkey. Native Americans had relied on wildlife for their survival, as it provided food, clothing, shelter, medicines and other life necessities. Although wildlife had been harvested by Native Americans throughout time, populations had remained relatively stable. Native people took only what they needed and could use at the time, and were careful not to deplete populations below the level at which they were sustainable through reproduction.




*Red fox*

Wildlife populations changed dramatically when Europeans arrived in North America. Fur garments – especially beaver hats – were very fashionable and in high demand in Europe. To meet the great demand

*WILDLIFE continued on page 8*

# Renewable Resources

We frequently hear the terms "renewable," "non-renewable" and "sustainable" used in relation to natural resources. What do they mean? According to the Project Learning Tree manual, a renewable resource is a naturally occurring raw material or form of energy that has the capacity to replenish itself through ecological cycles and sound management practices. The sun, wind, falling water and trees are all examples of renewable resources.

By contrast, nonrenewable resources are substances, found in finite quantities, which once used, cannot be replaced in this geological age. Examples are oil, gas, coal, gold, diamonds and emeralds.

The term sustainable is commonly used in conjunction with renewable resources. It refers to a rate at which a resource may be used without reducing its long-term availability or limiting its ability to renew itself. Forests and wildlife resources are renewable resources that can be continually available for human use only if they are managed to stay within the level of sustainability or a rate within which they are able to reproduce and replenish themselves indefinitely.

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WEB RESOURCES

- U.S. Department of Energy, Energy Information Association *www.eia.doe.gov/emeu/aer/overview.html*
- Rockefeller Center at Dartmouth College, Addressing energy essues in N.H. and V.T. *policyresearch.dartmouth.edu/assets/pdf/EnergySum.pdf*
- N.H. Office of Environmental Protection *www.nh.gov/oep/index.htm*
- The Simple Living Network *www.simpleliving.net*

# Soils: *A Precious Natural Resource*

*by Joe Homer, Soil Scientist,*
*USDA - Natural Resources Conservation Service*

© SUMMER INSTITUTE PHOTO

*Teachers at Investigation Schoolyards summer institute learn about soils.*

People define soil in many different ways. When I ask a group of students, "What is soil?," a common answer I get is, "Soil is dirt." I've come to accept this definition and would be shocked if the response was, "soil is a dynamic natural body on the surface of the earth, composed of mineral, organic materials and living organisms" or that "soil is the source of all life on the planet earth."

As we get further away from the agricultural society of our forefathers, many people have lost their connection with the soil. One of my goals at workshops has been to re-connect students and adults to the land by illustrating relationships between the soil and all life on the earth. We get food, clothing and shelter from the soil. Soils store and filter our water supply. Additionally, soils provide a place for trees and plants to grow, which in turn convert the carbon dioxide we exhale into oxygen.

Once we are aware of the importance of soil, it becomes obvious that we need to do everything we can to protect it, while making use of its ability to produce those things we need to sustain life.

*"Man, despite his artistic pretensions, his sophistication and many accomplishments, owes the fact of his existence to a six inch layer of topsoil and the fact that it rains."*
*– Anonymous*

Soil scientists often debate whether or not soils are renewable. Managed properly, soils may be productive almost indefinitely. However, if abused, depleted or allowed to erode, it may take 300 to 500 years to develop one inch of topsoil.

As soils are one of our most precious natural resources, an essential goal of responsible stewardship of the land is to ensure that soil quality is maintained. Sustainability can be achieved with responsible farming, sound forest management techniques, wise land use planning and protection of valuable wetlands. We need to remind ourselves that soil is more than just dirt!

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Spotlight on...

# Society for the Protection of New Hampshire Forests

***Working to keep New Hampshire a great place to live***

The Society for the Protection of New Hampshire Forests is the state's oldest and largest non-profit land conservation organization. To preserve the quality of life New Hampshire residents know today, the goal of the Forest Society, in partnership with other conservation organizations, private landowners and government, is to conserve an additional one million acres of the state's most significant natural lands for trails, parks, farms and forests by 2026.

The Forest Society's Conservation Center building, located in Concord, demonstrates the use of renewable resources in construction and highlights energy conservation. The entire Conservation Center is constructed primarily of wood from New England's forests. The laminated carrying beams, for example, were made from eastern red spruce — the first time it was ever used commercially in lamination. The staircases combine oak steps with cherry and pine railings. Much of the paneling is native eastern white pine butternut.

The French Wing, completed in 2001, is an 11,400-square-foot addition to the original Conservation Center. This building achieved a gold rating in the Leadership in Energy & Environmental Design (LEED) ranking system. The U.S. Green Building Council uses the LEED system to evaluate and assess the environmental performance and impact of both new and previously existing buildings.

Plants lining the atrium are watered using filtered water from the shower, sinks, water fountain and dishwasher. The "greywater" flows to the basement, where it is filtered and pumped back up to the plants. Altogether, the French Wing uses one sixth of the total daily energy usage of a standard office building.

The Conservation Center is open for tours weekdays from 9 a.m. to 5 p.m. Visitors may take a self-guided audio tour, visit the New Hampshire-made gift shop, and take a walk on the Merrimack River floodplain.


For more information or directions, call (603) 224-9945, or visit *www.forestsociety.org.*

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# Forest Sustainability – *Past, Present, and Future*

Forests are key to New Hampshire's ecological and economic health. About 84% of New Hampshire is currently forested, second in the nation to Maine. When the colonists first arrived in the early 1600s, more than 90% of New Hampshire was forested. By 1850 the forest cover had dropped to 45% because the land was cleared for agriculture. As settlers discovered better farmland in the west and south and greater economic opportunity in the cities, they left their farms. Abandoned and left fallow, forests regenerated, eventually restoring much of the earlier cover.

Today, private individuals own approximately 67% of New Hampshire's forests, 23% are on public lands, and owners of forest-related industries, such as paper mills, control 10%. Forests are a renewable resource that, if managed properly, can be sustainable and provide for human needs indefinitely. In addition to sustainability, management objectives may include the raising of an economically valuable forest crop for timber or pulp, the enhancement of habitat for wildlife, or aesthetics. Harvesting methods vary according to both the forest type and the management objectives developed for it.

Forests continue to play a key role in the economics of New Hampshire. Nearly 8,000 residents are employed in the forest industry, making it the state's fourth largest industry in terms of employment and wages. There are an estimated 1,200 loggers, or timber harvesters, in New Hampshire. Logging generates $37 million in financial return to the state's landowners. Almost $4 million in timber tax is returned to New Hampshire municipalities. Wood provides 6% of electrical and heating needs in the state. The firewood market has declined significantly since a peak in the early 1980s. However, recent increases in home heating fuel prices are contributing to renewed interest in wood as residential fuel, with accompanying increases in demand and price.

Since the beginning of time, humans have relied on trees and forests to build homes, fuel fires and to make the things they use. Proper management will ensure that our forests remain sustainable and continue to be a renewable resource for generations to come. As Bryce Nelson, professor at the University of Southern California, stated, "People who will not sustain trees will soon live in a world that will not sustain people."

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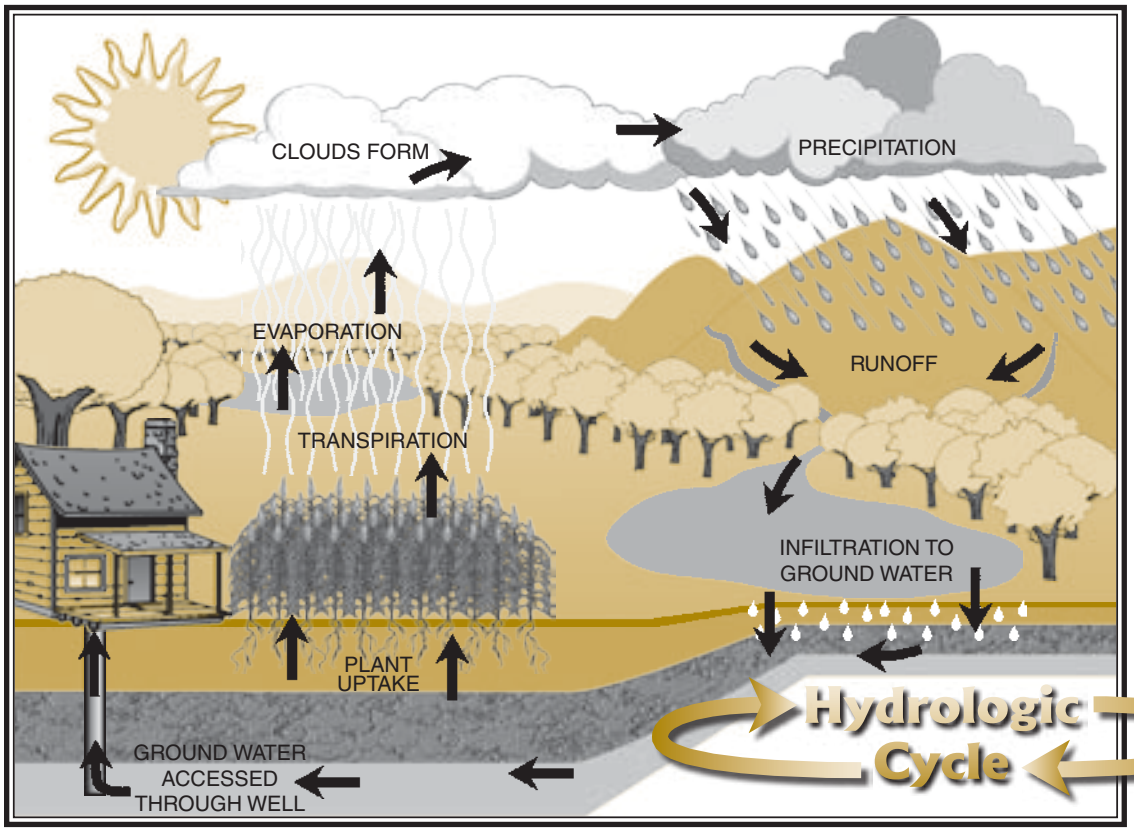
# Is Water a Renewable Resource?

In an ideal world, water is a renewable resource. We are all familiar with the hydrologic cycle, which continually cycles water from the earth to the atmosphere and back to earth, where it replenishes waterbodies and once again becomes available for plant and animal use. When we manage our water resources properly, limiting the volume of waste and type of pollution that is allowed to enter the environment, water resources remain sustainable, and it remains a renewable resource. However, as the world's human population increases and untreated waste production and pollution increase, water resources are no longer sustainable. Water, one of the most critical resources required to sustain life, is becoming a nonrenewable resource.




There are ways we can all help keep water a renewable resource. We need to be conscientious about following the directions for the use and disposal of toxic substances, such as pesticides and fertilizers that we apply to gardens and lawns; take hazardous materials to a local dump/transfer station when household hazardous waste days are offered; reuse and recycle whenever possible; maintain septic systems to keep them in top working order; plant vegetative buffers; and use less water!

For more information about ways you can help, contact Jessica Morton, at (603) 271-4071 or *jmorton@des.state.nh.us.*

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# Harnessing Hydropower

Falling or flowing water is a renewable resource that can be used to generate electricity. Of all the renewable energy sources used to generate electricity, including wind and the sun, hydropower is most commonly used. It accounts for 7% of the total U.S. electricity generation and approximately 75% of generation from renewable sources.

Hydropower is one of the oldest sources of energy used by humans. It was used thousands of years ago to power paddle wheels used to grind grain. Our nation's first industrial use of hydropower to generate electricity occurred in 1880. Until then, coal had been the only fuel used to produce electricity. Because the source of hydropower is water, hydroelectric power plants must be located on a water source. Therefore, it wasn't until the technology to transmit electricity over long distances was developed that hydropower became widely used.

Some people regard hydropower as the ideal power source for electricity generation. Its low cost to generate electricity, and the fact that it doesn't create waste or pollute air or water, make it highly desirable. However, there is a down side. Large hydropower plants are expensive to build and take up a large land area. Also, the dams created to control the flow of water through the power plants have a widespread effect on the environment.

Vast upland areas, habitat for many species of wildlife, are flooded to hold water above the dams to enable year-round production of electricity. Anadromous fish, like shad and salmon, must swim upstream each spring to spawn. Dams severely limit fish access to their traditional spawning streams. The installation of fish ladders, or a way for fish to bypass dams, works in many cases, but the solution is costly. In addition, dams alter the flow of water and often degrade the recreational value for anglers and whitewater boating enthusiasts.

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*Adapted from the Energy's Kids Page website, February 2006, Energy Information Administration*

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# Please Shine Down on Me

The sun, which generates energy constantly, is the source for all energy on earth. Energy stored in fossil fuels, wood, wind and water, and energy used by plants, animals and humans, all comes from the sun. Without it, there would be no life on earth. To quote award-winning children's musician Billy B., "Every minute of every hour, the sun is the ultimate power, for the avalanche and the flower, for all life and cycles."

About 30% of the sun's energy is reflected back into space by the atmosphere, while 70% warms the air, oceans and landmass, driving the water, oxygen and carbon cycles. Even though only one billionth of the total energy produced by the sun reaches the earth, it is still the equivalent of nearly 420 trillion kilowatt-hours.

Despite the sun's ready availability as an energy source, relatively few households in the U.S. derive their energy from it; in fact, surprisingly, the number is decreasing. According to the U.S. Department of Energy, solar energy provided approximately 0.06% of the energy used by U.S. households in both 1989 and 2005. Yet, statistics for 1995 show that use of solar energy had risen briefly to 0.07%, only to fall in the following years. (Raw data is available from the Energy Information Association at http://www.eia.doe.gov/emeu/aer/overview.html.)

Passive solar features are used to provide heating, cooling and lighting for buildings. Passive solar design focuses on natural energy flow and building design techniques such as south-facing overhangs, which provide shade in summer and absorb heat in winter. Passive solar features are relatively inexpensive, efficient and pollution-free.

Solar energy can also be harnessed to make electricity. Solar electric systems use photovoltaic cells to capture the sun's energy; when the sun hits the cells, electrical energy is generated. The cells are often combined together in large solar panels. While electricity cannot be made at night or during cloudy weather, batteries can store energy for use during those times. More than 400 schools in the U.S. now have solar electric systems installed on their roofs.

Solar hot water or thermal systems use a different technique to collect energy from the sun. The sun's rays are directed onto large water pipes. As the water heats and boils, it produces steam, which is used to turn a turbine and generate electricity. There is typically little pollution produced by solar power plants, and minimal harm caused to the environment. However, equipment needed to collect large amounts of solar energy can be expensive, and these systems typically require a large amount of open land.

© SPNHF PHOTO

*Large solar panels harness the sun's energy to make electricity.*

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# Blowing In the Wind

Wind energy is renewable – it seems the breeze is always blowing. Did you know that the wind is powered by solar energy? The sun's uneven heating of the atmosphere, irregularities of the earth's surface and rotation of the earth cause wind. Wind at a given site is further influenced by regional weather, terrain, elevation, the presence of bodies of water and land cover.

© MARK WEISSFLOG, KW MANAGEMENT, INC.

*Workers inspect a wind turbine.*

Since the beginning of time, we've used the wind's power to dry our clothes, sail our boats and avoid detection by our prey. More recently, humans have been converting wind power to electricity. To date, there is no commercially generated wind-power in New Hampshire, though there are small-scale, private operations. U.S. Department of Energy experts estimate that about 3% of the land area in New Hampshire (178,636 acres) may be suitable for wind energy development. If all of New Hampshire's wind energy potential is developed, about 5 million megawatt hours of power can be produced each year, which is about 55% of the entire state's electricity consumption.

Wind turbines convert the wind's kinetic energy into mechanical energy that can then generate electricity. Harnessing the wind's power for human use can be controversial for a number of reasons. The best sites for wind energy development in New Hampshire are located on treeless hilltops, ridge crests and mountaintops, areas often undeveloped and regarded for their aesthetic beauty and environmental quality. In addition, migrating birds may be impacted by the wind turbines, depending on where they are located.

When planning to place a wind farm, one must consider the physical accessibility, environmental impacts (effects on habitat), noise and aesthetic impacts, and more. Further, while wind energy can be one of the lowest-priced renewable energy sources, set-up can be quite costly. The major challenge to using wind as a source of power is that the wind is intermittent, and it doesn't always blow when electricity is needed. Wind energy cannot be stored (unless batteries are used); and not all winds can be harnessed to meet the timing of electricity demand. Because of these issues, a balance needs to be found among optimizing power production, ensuring cost effectiveness and minimizing potential aesthetic and environmental impacts.

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## ANNOUNCEMENTS

**PLT at Technology Conference**

PLT will present two sessions at the Christa McAuliffe Technology Conference, November 28-30 – one on PLT's partnership with the Earth & Sky radio program; and one on the NH Forests Forever interactive CD. Contact Project Learning Tree at (603) 226-0160 or email *info@nhplt.org*.

**Science Frameworks Online**

PLT, WET and WILD activity correlations to the NEW N.H. Frameworks for Science Literacy (K-12) are now available online. Visit *www.nhplt.org*, *www.des.state.nh.us/wet/* or *www.wildlife.state.nh.us/Education/project_WILD.htm*.

**White Mountain Trail Curriculum**

Are you interested in exploring forest ecology, sustainability and management? Check out the new White Mountain National Forest Discovery Trail Curriculum. Activities and resources for grade spans of K-4, 5-8 and 9-12 help your students learn about the forest. Contact Clare Long, Conservation Education Program Leader, White Mountain National Forest, at (603) 528-8707 or email *cclong@fs.fed.us*.

**Get Outside!**

In response to the growing interest in encouraging children to get outside, PLT has launched a national initiative Every Student Learns Outside(tm) and website www.learnoutside.org to help educators make outdoor experiences part of their everyday lesson plans. "For 30 years, Project Learning Tree has provided educators with the tools, training and resources they need to get their students outdoors and learning about their local environment," said Kathy McGlauflin, Director of Project Learning Tree and Senior Vice President of AFF. "Through Every Student Learns Outside, we'll accelerate our on-going efforts to help teachers bring the environment into the classroom and students into the environment." Read the full press release at *www.plt.org/cms/pages/31_41_40.html*.

**Fourth Grade Water Science Fair**

The N.H. Drinking Water Week Coalition will sponsor the N.H. Fourth Grade Water Science Fair finals during National Drinking Water Week (May 6-May 12, 2007). The fair is the culmination of local water science fairs held at schools around the state. The state finals will be held on May 8; location TBA. Any fourth grade teacher interested in having his/her class participate, contact Jessica Morton at (603) 271-4071 or *jmorton@des.state.nh.us*.

**Wonders of Wildlife**

Introduce your grades 3-6 students to the wildlife resources of New Hampshire through a series of active education programs. A New Hampshire Fish and Game Wonders of Wildlife docent will come to your elementary school classroom to present one of four interactive programs: Habits and Habitats; Endangered Species; Pond Ecology; and Wetlands. Scheduling now through February 25, for spring presentations. Programs are free of charge. For a program request form, visit *www.wildlife.state.nh.us/Education/ed_Wonders_of_Wildlife.htm*.

**Projects WET, WILD and Learning Tree**

Environmental Pathways into the Classroom, a joint workshop of Projects WET, WILD and Learning Tree, will be offered on December 2 from 8:30 a.m. to 5 p.m. at the Seacoast Science Center at Odiorne Point State Park in Rye. For more information and a registration form, visit *www.des.state.nh.us/wet/docs/UNHFall06.doc*.

**Wildlife Action Grants Available**

Homes for Wildlife action grants are available for schoolyard habitat projects. This program provides $300-$600 grants to help initiate habitat projects. Qualifying projects will: 1) directly benefit wildlife; 2) involve students in planning and implementation; 3) make connections with your curriculum; and, 4) be sustainable for the long term. Grant deadlines are November 15, 2006, and February 15, 2007. Contact Marilyn Wyzga, Project HOME coordinator, at (603) 271-3211 or *mwyzga@wildlife.state.nh.us*. Funded by the conservation license plates, through the Nongame and Endangered Wildlife Program of the N.H. Fish and Game Department.

## Activities Related to Articles in This Issue

**Project WILD suggests:**

In *Arctic Survival*, students learn about nonrenewable and renewable resources in a simulation in which they become hunters, gatherers and traders in an attempt to gain food, water, shelter and heat.

In *What You Wear is What They Were*, students analyze their clothing according to the natural resources from which they are derived. They make assessments about appropriate uses of such natural resources using criteria they establish.

Students analyze two articles on sustainability in *Sustainability: Then, Now, Later*. They investigate community life in the present and 100 years ago, then predict community life 100 years in the future.

**Project WET suggests:**

In *Energetic Water*, students invent devices or create activities that demonstrate how moving water can accomplish work.

How did they keep things cold without electricity? In *Cold Cash in the Icebox* students will discover the challenges of refrigeration 100 years ago by creating iceboxes and then trying to keep ice from melting.

Students learn the four essential factors that are needed to sustain life (soil, sunlight, air and water) in the activity *The Life Box*.

**Project Learning Tree suggests:**

Students often do not know which resources are renewable and which are nonrenewable, or which are recyclable or reusable. In *Renewable or Not*, students will learn what these terms mean and discover why sustainable use of natural resources is so important.

*Resource-Go-Round* gives students the opportunity to explore a variety of natural resources and products that people depend on every day. They learn about product life cycles and then research a specific product to find out the sources of its various components.

*The Energy & Society* activity guide and kit helps students learn about their relationship with energy and investigate the environmental issues related to energy's role in society. WEB

# ON THE H.O.M.E. FRONT

## Renewable Resources, Sustainable Schoolyards

*by Marilyn Wyzga*

Take a look around your school grounds and what do you see? There are a wealth of renewable resources! These include soils, plants and wildlife. Each is valuable in its own way, but taken together, a myriad of beneficial interactions are taking place that we can't begin to fathom.

Schoolyard soils give rise to the local vegetation. Vegetation helps cool the school with shade in the warmer months and prevents loss of heat to winter winds. Plants filter the rain and the air we breathe. Thoughtfully selected plants, well adapted to the site's conditions, can minimize the need for maintenance like watering or applying pesticides. Animals make their homes in the soils and plants, taking cover and finding food.

You can sustain and renew these resources with some conscious action that involves your students in a schoolyard habitat enhancement.

### Underlying Principles

Life on earth depends on three basic scientific laws of matter and energy, which are all interconnected:

- Earth receives a one-way flow of energy (from the sun).
- Matter cycles and vital chemicals recycle through biological, geological and chemical processes.
- Gravity works.

Using a local ecosystem as a model, study the fundamental processes of nature and apply them to the landscapes around your school.

### Feed Your Soil

Soil teems with life. In the Northeast, plant litter doesn't accumulate, because of the activity of these decomposers. If you resist the urge to clean up everything that falls from a plant, and the urge to cart away everything you remove from a garden, you feed these "underground livestock" and the soil. Leaves, twigs, fruit husks and nut hulls slowly decompose on the landscape floor, building up humus. Microorganisms multiply, bringing in larger organisms that eat, grow, reproduce and die, adding complex components to the food web. Plants are supplied with minerals, food, water, air and micronutrients.

In short, the leaves, flowers, fruits and bark that come out of the earth all come from energy captured by sunlight. The more organic matter left on the ground, the more can enter back into the system.

### Protect Your Soil

Vast quantities of soil substrate, formed by weathering of parent material, lie beneath the living layers of soil. Over time, growth, decay and decomposition, along with rain, wind, ice, snowmelt and temperature changes, bring these essential reserves of inorganic compounds into usable forms for plants. Mineral matter is supplied by the subsoil, taken up by root systems and recycled.

To protect soils from wind, sun and rain, use layers of vegetation, from the tallest canopy trees on down to groundcovers. Canopy layers influence the amount of sun reaching ground level and break rainfall into smaller droplets. Drying winds and air currents are slowed and humidified as they pass through layers of vegetation and litter. Living groundcovers save you from trucking in bark mulch from offsite sources year after year.

### Choose the Right Plant for the Right Place

When plants are matched to conditions where they grow best, they produce abundant flowers, fruit and dense vegetative growth. Pollen and nectar feeders, birds and other animals find their niche within the multiple layers of vegetation and soils. In turn, flowers are pollinated, seeds develop and genes are passed on. Dropped feathers, hairs and scats are cycled into the food web.

You could fill a bird feeder every day with seed purchased from a Midwest farm, or you could plant trees and shrubs that produce fruits and seeds, and attract insects that birds like to eat. Many native plants will care for themselves once they become established, if they are well selected and planted.

Many school sites have extremes of wet and dry. Your site likely includes drainage swales to collect runoff from parking lots. Transform these into rain gardens by planting them with shrubs and perennials that tolerate wet feet. These not only help filter the runoff, but can produce food and cover for wildlife, yielding a mini-wetland habitat. For the droughty, sunny islands of school parking lots, choose plants recommended for desert xeriscaping – which require little water – or those adapted to the dry and salty conditions of the coast.

### Layer Up

Layers equal diversity: tall trees in the canopy, smaller trees and tall shrubs in the understory, shrubs and saplings in the shrub layer, and mosses, ferns, grasses and wildflowers in the groundcovers. Plant layers create a multitude of microhabitats that may be inhabited by wildlife, from the tiniest microorganism, to winged pollinators, to adult white tailed deer. A diversity of wildlife

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© LAUREN CHASE ROWELL PHOTO

*Plants for this traffic island at the University of New Hampshire were chosen to thrive in sunny, droughty conditions and tolerate snowload.*

*WILDLIFE continued from page 1*

for furs that existed, many of the furbearer populations in Europe had been seriously depleted. Arriving in North America, Europeans found abundant populations of furbearers that they recognized would be a valuable commodity in Europe. Unregulated harvest of furbearers to meet the demand in Europe, and other wildlife harvested to feed the increasing number of settlers, caused wildlife populations to plummet. At the same time, forests were being cleared for agricultural purposes. As people cleared land to grow food, much of the remaining wildlife lost its habitat. As a result of this two-fold challenge of unregulated harvest and loss of habitat, some wildlife populations were extirpated from much of the Northeast – their numbers had fallen below what was naturally renewable or sustainable.

After the Civil War, many northeastern farms were abandoned as climate, topography and new modes of transportation favored farming in the west and south. New Hampshire fields were left fallow, and forests allowed to grow back. At nearly the same time, the plight of wildlife was recognized and newly created government game commissions began regulating the harvest of wildlife. Given the re-growth of the forests and new harvest regulations, wildlife returned to much of its former range. Because some populations had reached such low numbers or had disappeared from such large areas, they were helped along with wildlife agency reintroduction efforts.

Today, furbearers and many other wildlife populations are once again a renewable resource in New Hampshire. Through appropriate management, with sustainability as a primary objective, we can expect to enjoy and utilize wildlife for generations to come. It is important to remember that no wildlife population has become threatened or endangered because of the regulated harvest of that population. It is when the harvest is unregulated that the sustainability of our wildlife resources is in jeopardy.

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derives food and cover from a diversity of plants in a variety of age classes and sizes.

## Conclusion

School sites provide a wealth of learning opportunities. Through observing, engaging with and tending your landscape, you gain understanding of its myriad functions. When you mimic or borrow from natural processes, you can return vitality and health to the land, enrich the renewable resources available on your school site and sustain the landscapes you create.

For more information on sustainable schoolyards, contact Marilyn Wyzga, Project HOME coordinator, at (603) 271-3211 or email mwyzga@wildlife.state.nh.us.

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Do you have an idea for a topic the WEB should address? If so, please contact Esther Cowles at (603) 226-0160 or *info@nhplt.org.*

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